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PROJECT CORONA

1. **Purpose:** Project CORONA contemplates the covert development and subsequent operational use of a short-lived reconnaissance satellite from which, at the completion of its mission, a recoverable capsule containing exposed film is separated for return and pick up in a preselected ocean area. Prior to the initiation of this project, the development of such a system had been started by the Air Force as a part of Weapons System 117L but was officially cancelled early in March. Thus, CORONA involves the picking up and carrying through covertly of a program already undertaken together with technical modifications therein as indicated below.

2. **Configuration:** Taking advantage of arrangements already made by the Air Force, the basic vehicle for project CORONA will be a two-stage rocket consisting of the same second stage that is being built by Lockheed for WS-117L with a Thor booster as the first stage (in place of the Atlas booster which will be the first stage of the WS-117L vehicle). The payload will be a pod containing a twenty-four inch focal length camera and a recoverable capsule into which the exposed film feeds as the camera operates. Either the whole second stage of the vehicle, or possibly only the pod containing the payload, will be stabilized after it is in orbit and will serve as a platform from which the camera continuously looks downward to the earth and takes pictures by scanning at right angles to the path. This configuration is expected to yield a resolution of about twenty feet on the ground which should be sufficient to permit structures to be distinguished from one another and to allow the detection and identification of such major reconnaissance targets as missile sites under construction, previously unobserved communities, or other major installations in the areas hitherto inaccessible to reconnaissance such as the Soviet far north.

3. **Program:** It is proposed that twelve vehicles in the above configuration be produced. Although it has not yet been possible to establish a firm schedule of delivery dates, it appears probable that the first firing can be no later than June of 1959. It is tentatively planned to schedule firings initially at the rate of one a month but to achieve a faster rate, perhaps as high as two per month, as soon as possible. Assuming that this timing can be achieved,

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the twelve firings should be completed in the spring of 1960. It must be assumed that by no means all of these vehicles will be successfully orbited, operate without malfunction, and be recovered. At a later date it may be desirable to consider whether this program should be extended, with or without further technological improvement.

4. Modification of Earlier Plans: The configuration briefly described above differs from that contemplated in the program originally launched by the Air Force. The earlier plan called for spin stabilization of the pod containing the payload, a six inch focal length camera without image motion compensation, and a very short exposure time. Such a configuration could be available as much as six months sooner and would involve somewhat less technological risk (because of its reliance on a proven method of stabilization) than the one presently proposed. On the other hand, it would require the use of fast film which results in grainy photography and would yield a resolution of only sixty feet on the ground. To carry through the development of the original configuration and at the same time to undertake the development of the modified configuration in parallel would have obvious advantages but would add four or five million dollars to the total cost of the program and would complicate the problem of maintaining cover. On balance it is believed, (a) that efforts should be concentrated on the development of the more sophisticated modified version and (b) that the earlier availability date of the original configuration does not justify the cost in terms of funds and effort of continuing its development in parallel with the modified configuration.

5. Administration: CORONA is being carried out under the authority of the Advanced Research Projects Agency and the Central Intelligence Agency with the support and participation of the U.S. Air Force. ARPA has authorized, and will exercise general technical supervision over, the development of the vehicle. Detailed supervision of vehicle development is being performed by the Air Force Ballistic Missile Division acting as agent for ARPA. The Ballistic Missile Division is responsible also for the provision of necessary ground facilities, which are in any case required for the WS-117L program. CIA is participating in supervision of the technical development, especially as applied to the actual reconnaissance equipment, is undertaking all procurement that must be handled covertly, and has general responsibility for cover and for the maintenance of security. In the operational phase actual missile launchings will be carried out at Cooke Air Force Base by technical

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staffs of the companies concerned. Tracking will be carried out from stations being established by the Ballistic Missile Division. Recovery will be accomplished by a Navy task force. The line of command for these field activities of launching, tracking, and recovery will be through the Ballistic Missile Division. Subject to approval by the appropriate political authorities, the general schedule of launchings will be determined by the availability of vehicles and launching facilities. Specific timing within this schedule will be determined as far as possible on the basis of weather prevailing over target areas. For both cover and control purposes, weather will be reported through an already existing CIA channel and firing dates will be selected by the Central Intelligence Agency.

6. Cover and Security: As noted above the initial step taken to place this undertaking on a truly covert basis was the cancellation of the program already started by the Air Force as a part of its WS-117L development. The cover and security arrangements already made or contemplated are as follows:

a. Subsequent to the ostensible cancellation, limited numbers of individuals in the participating companies were cleared for and advised of procedures to be employed in CORONA. Compartmentation of this project from other activities is being established in a satisfactory manner in all of the companies and an internal cover story is being worked out for use in each company to explain to unwitting company personnel the nature of the compartmented and highly classified work which will be going forward. Generally speaking the personnel actually employed in the design and production of the classified reconnaissance equipment must be witting of its true purpose.

b. Since actual missile firings attract public attention, a cover explanation will be required during the operational phase to explain plausibly the dozen or more launchings that will take place and the recovery operations which will be carried out by the Navy and will involve considerable numbers of Naval personnel. A cover story for certain parts of the developmental work and for some or all of the firings will explain these observable events as parts of a program to conduct experimental space flights with laboratory animals. Partly in support of this cover, but also for their own inherent scientific value, a recovery capsule suitable for carrying an animal

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and appropriately instrumented will actually be developed and a number of biomedical launchings and recoveries will be undertaken. It is planned that when reconnaissance equipment is to be launched, the pod containing it will be substituted for the biomedical pod just before firing and it is believed knowledge of this substitution can be limited to a few witting individuals in the launching crews. As a supplementary cover story it may be possible to explain some of the firings as events in a program of nose cone re-entry tests.

c. Great technical ingenuity and carefully worked out procedures will be required to maintain the plausibility of either or both of these cover stories. Although planning is still at an early stage, it is believed that this can be accomplished. It would be highly desirable, however, not only to provide an innocent explanation of the quite unconcealable firing and recovery activities but also to conceal the fact that the vehicle ever enters into orbit, since the suspicion will inevitably arise that any orbiting vehicle, however described, is in fact being used for reconnaissance. With this objective in view, the possibility of describing the vehicle as a missile rather than as a short-lived satellite is being studied. If this appears feasible the cover stories will be appropriately modified.

d. The strictest security control is being maintained over all aspects of CORONA. All communications which reflect the existence of this project are handled within Top Secret procedures. A list of all individuals who are witting of the project is maintained. Individuals are cleared for and made knowledgeable of the project only on a strict need-to-know basis. Additional clearances may be granted only with prior approval from the CIA project office and this authority will not be delegated to any other organization concerned with the project.

7. Procurement: Of the total procurement required for CORONA, as large a proportion as possible will be handled relatively overtly as a part of the WS-117L and other programs. In accordance with this general plan, both the Thor booster, which is produced by Douglas for a number of military application, and the Lockheed second stage vehicle, which (as noted above) is

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being developed for WS-117L, will be procured by the Air Force. The Thor boosters will be allocated from a group of deliveries already earmarked for certain miscellaneous Air Force programs (including re-entry tests and biomedical programs). The second stage vehicles will be allocated from production already scheduled for the WS-117L program. Only the pods containing reconnaissance equipment and the recoverable film cassettes will be procured covertly by the Central Intelligence Agency. Production of only the covert items will be compartmented in the several companies. The responsibility for systems integration and final assembly will rest with Lockheed. Arrangements are being made which will permit Lockheed's production, testing, and the bulk of its check-out activities to be compartmented and securely carried out up to the moment when the reconnaissance pod is substituted for a biomedical or instrumented nose cone payload.

8. Financing: The total cost of the program herein outlined, assuming that it will be limited to twelve vehicles, is estimated at approximately [] dollars:

a. Of this amount, covert procurement of the payload would account for approximately [] dollars as follows:

| | | |
|--------------------------------|-----|----------------|
| Recoverable Capsules | [] | dollars |
| Cameras | [] | dollars |
| Payload Pod and assembly costs | [] | dollars |
| TOTAL | [] | dollars |

It is proposed that these costs be financed by the Central Intelligence Agency, subject to obtaining the funds from the Agency's reserve.

b. The largest part of the [] dollar total represents the cost of the Thor boosters and the Lockheed second stage vehicles. A rather arbitrary allowance of [] dollars per completed vehicle has been included for these items which therefore account for [] dollars of the total. Since these will be procured in connection with other programs, as noted above, they will be financed in the same way as these other programs. For the most part they will be financed by ARPA through the Air Force as elements of the WS-117L and biomedical programs. There is some question, however, concerning the allocation of the cost of

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Thor boosters. In any case the whole cost of the basic vehicles will be funded within presently approved programs.

c. In addition to the foregoing costs for development and procurement of hardware there will be significant operational costs. Moreover certain ground facilities, including especially two new launching pads at Cooke AFB and certain tracking facilities, will be built sooner than they would otherwise be needed. It would be difficult to make a meaningful estimate of costs of this character properly chargeable to CORONA and no such estimate has been attempted. The ground facilities required for CORONA would in any case be needed for WS-117L. Certain operational costs may properly be treated as developmental costs for WS-117L and certain operational costs (for example part of the cost of search and recovery) are not truly additional costs since they represent the use of military resources already in being. These costs must in any event be charged to other programs for reasons of cover and will be absorbed by those programs.

Richard M. Bissell, jr/djm (15 Apr 58)

1-Pro. Director (RMB) (*White House*)

2-Dr. Killian

3-ARPA - Adm. Clark

4-USAEC - Mr. Horner

5-~~AFBMD~~ - Gen. Rittland (*not to be*) *DPS/Security office.*

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7-*Meeting*

8-CORONA Chrono

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